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ABSTRACT

Understanding the geography of the state is the key to understanding the history of California. From the beginnings of the first early settlements of indigenous peoples, the terrain and resources of California have always influenced how people arrived and where they settled in the state. Having a knowledge of the physical setting of California is a vital beginning to the fourth grade history-social science curriculum. Developing an appreciation of the varied geographic features of California helps students understand the desires of many people to settle in the area over tens of thousands of years. Students identify California's mountain ranges, major coastal bays, natural harbors, expansive river valleys, delta regions, and deserts. They investigate the advantages and disadvantages of California's physical geography in its development as a prominent and powerful state. Suggested implementation time is 10 class periods. The lesson plan discusses the significance of the topic; lists focus questions; features literacy links; and provides information and student activities, dividing the topic into: "Beginning the Topic," "Developing the Topic," and "Culminating the Topic." The lesson assessment is integrated with the instruction and occurs throughout the lesson; the focus questions provide a framework for the evaluation of the unit. Extended/correlated activities are suggested. Resources for the sample topic are listed. Appended is additional information. (BT)

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ED 461 601

CALIFORNIA History-Social Science
Course Models

The Physical Setting: California and Beyond

Grade 4 Model Lesson for Standard 4.1

Written by Dr. Laura Wendling

SO 033 563

2001

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Grade 4

Standard 4.1: The Physical Setting: California and Beyond

Dr. Laura Wendling, Editor, under the auspices of the California State Department of Education.

Standard 4.1:
Students demonstrate an understanding of the physical and human geographic features that define places and regions in California by:

1. Explaining and using the coordinate grid system of latitude and longitude to determine absolute locations of places in California and on Earth;

2. Distinguishing between the two poles; the equator and the prime meridian; the tropics; and the hemispheres using coordinates to plot locations;

3. Identifying the state capital and describing the basic regions of California, including how their characteristics and physical environment affect human activity (e.g., water, landforms, vegetation, climate);

4. Identifying the location of and explaining the reasons for the growth of towns in relation to the Pacific Ocean, rivers, valleys, and mountain passes;

5. Using maps, charts and pictures to describe how communities in California vary in land use, vegetation, wildlife, climate, population density, architecture, services, and transportation.

Sample topic addressing parts of Standard 4.1:
California, the Physical Setting: parts of the third, fourth, and fifth elements.
Suggested time: 10 class periods

Grade 4

Significance of the Topic

Understanding the geography of the state is the key to understanding the history of California. From the beginnings of the first early settlements of indigenous peoples, the terrain and resources of California have always influenced how people arrived and where they settled in the state.

Having a knowledge of the physical setting of California is a vital beginning to the fourth grade history-social science curriculum. Developing an appreciation of the varied geographic features of California helps students understand the desires of many people to settle in the area over tens of thousands of years. In this unit, students identify California's mountain ranges, major coastal bays, natural harbors, expansive river valleys, delta regions, and deserts. They investigate the advantages and disadvantages of California's physical geography in its development as a prominent and powerful state.

Students build upon their knowledge of local geography previously learned in the third grade to help them identify the unique regions of California. They share and discuss what California means to them and what they know about California. This strategy allows students to recall their third grade geography of where their city is located. They now have a reference point for where they are, where their city is located in the state of California, where their state is in the country, and where their country is in the world.

In their studies of the state, students learn about the ways geography influenced the settlement patterns of people. They learn about the natural resources of California that also lead people to want to come to the state. They learn why water is one of the state's most precious resources and that water resources have been, and still are, crucial to California's history.

Students use various maps to develop their sense of spatial awareness. Being able to analyze a desk map and a wall map of the same area with different perspective is an important concept students need to understand. In addition, students use aerial photographs or satellite-produced images to see current settlements of people in an area and compare them with those of people who lived in the same area long ago.

The study of our state's geography allows students to compare and interpret maps and photographs, to explain how physical process have affected the land, and how climate has contributed to the varied geographic features of California, from the beauty of its mountains to the vastness of its features of California, from the beauty of its mountains to the vastness of its deserts. However, extreme climatic shifts have played havoc on the state resulting sometimes in extreme amounts of rainfall or sweltering, record breaking temperatures.

Along with climate and weather, California's geographic features have also been shaped by natural hazards in the physical environment. Students identify how natural occurrences such as earthquakes have influenced the land and settlement of people.

Although some of these topics will be introduced in this initial lesson, they should all be developed as the study of California progresses through the year.

Focus Questions:
1. What do I know, and want to know, about the history of California?
2. Where is California located with respect to our nation and the world?
3. What different geographic features are found in California and where are they located?
4. How did the physical environment influence such factors as where early residents lived, the types of houses they built, the food they ate, their daily life?
5. What natural resources are found in California?
6. How did the physical environment influence the location, settlement and growth of towns?

Literacy Links
A variety of strategies and activities are included in the lesson that support and develop reading, writing, listening, and speaking skills. Examples of the literacy supporting activities from this lesson are:

Reading
- Make and read maps, timelines, charts and graphic organizers
- Read a variety of texts including narrative, informational (encyclopedias, almanacs) picture books, historical fiction
- Develop content specific vocabulary dealing with aspects of physical geography

Writing
- Complete a KWL chart
- Label a blank California outline map noting key geographic features and cities
- Write a diary on the challenges encountered by early settlers during their travels
- List resources needed to support the state's growing population
- Respond in writing to the statement: "Water is California's liquid gold!"
- Develop 4-5 questions on origins and locations of cities
- Make physical relief map of California
- Write a travelogue about a trip through California
- Create "Found Poetry"
- Write travel brochures to advertise features of each of California's 4 regions
- Complete a Venn diagram comparing California with two other states or countries
- Develop questions for map quiz game cards

Speaking
- Respond to questions
- Describe change in scenery in "road map" activity
- Perform skit on the challenges encountered by early settlers during their travels
- Conduct a survey to determine why people live in California
- Speak clearly at an understandable pace

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Listening

- to multi-step directions
- to stories read aloud
- to class discussions
- to video about Santa Cruz

Sample Vocabulary Used in this Unit

Bay	Mountains
Central Valley	Peninsula
Coastal Plains	Plateau
Deserts	Region
Island	Relief Map
Latitude	Renewable / Non-renewable Resources
Longitude	River

Suggested Materials for this Unit

Overhead transparencies
Butcher paper
State, U.S. and World maps
Materials for making physical relief map (see list at end of unit)

A
Beginning the Topic

Focus Question: What do I know, and want to know, about the history of California?

Begin this lesson using a K W L strategy to tap students' prior knowledge about California. A KWL chart has students list "What We Know," "What We Want to Know," and "What We Learned" (see Appendix I-1). First students use the cluster technique to share with the class what California represents to them or what they know about the California while the teacher records responses under "What We Know" on a butcher paper chart. The KWL chart becomes an ongoing reference for use throughout the lesson. Students can share what they would like to learn about California while the teacher records these responses under the appropriate heading on the chart: KNOW, WANT to KNOW, LEARNED.

Focus Question: Where is California located with respect to our nation and the world?

Conduct a review connecting to past learning from the third grade curriculum. Students locate California on a map of the United States, noting California's placement in terms of

latitude and longitude, and give its relative location to other states. Then, using a world map, students again identify California and give its relative location to other countries of the world, especially those of the Pacific Rim. Ask students, What states, countries and continents are closest to California?

Focus Question: What different geographic features are found in California and where are they located?

Use picture books, such as *California*, *Beautiful California*, and *California From the Air*, which show the geographic setting of the state (see "Resources for the Sample Topic") or identify the physical geography of the state using students' personal observations through a "road map" activity in which you provide students with an outline map of California and have them trace on the map areas that they have visited in the state. Have them describe how the scenery changed as they traveled from one part of the state to another. For those students who may not have traveled outside their city and its immediate surroundings, or who were too young to remember other places where they may have lived in the state, have them construct a "road map" of their city. Students can also record how they travel to school and describe different physical features they have seen, such as hills, canyons, rivers or streams.

Then, using an overhead transparency or large sheet of butcher paper, list the places that students identified in the picture books of California or on their individual "road maps." Use this list to illustrate California's many physical features and to review land forms by asking students to identify each place on the list as a bay, river, island, peninsula, plateau, etc. Review and define terms if necessary. Be certain that students are able to correctly identify each of these geographic features. Have students label a blank California outline map with basic geographic features. After students have labeled the map, identify the state capitol, key cities, and the four main regions of our state: mountains, central valley, coastal plains, and deserts.

B
Developing the Topic

Focus Question: How did the physical environment influence such factors as where early residents lived, the types of houses they built, the food they ate, their daily life?

Tell students that as they study the history of California during the year they will be learning more about the people who settled here from the earliest American Indians to the most recent immigrants. Ask students to imagine what it was like to live in California thousands of years ago.

What would determine where they lived?
What types of houses would they build?
What would they do for a living?
Were there factors such as group rivalry that dictated where groups lived?

After discussing questions such as these, ask students: How important is the physical environment in determining where we live and what we do?

Focus Question: How did the physical environment affect the travels of early settlers coming to California?

Ask students to imagine that they are on one of the Spanish expeditions to California in the 1760s traveling north from Mexico into California.

What geographic barriers would they have to cross while traveling over land to get into California?
Where would they be most likely to settle? Why?
What would they need to bring with them?
What could they expect to find once they settled in California?

Divide the class into groups and have each group prepare a skit or write a diary describing the difficulty explorers and settlers may have encountered as they traveled to California. Include the use of a visual aid from a physical map of North America. Groups could represent:

- Russian explores moving south of Alaska in the late 1700s;
- Prospectors crossing into California from the east in search of gold in 1850;
- Chinese immigrants crossing the Pacific Ocean in the 1850s;
- Immigrants from Europe coming by sea in the 1880s;
- Farmers from Nebraska, Iowa, and Oklahoma who came by cars and trucks in the 1930s looking for work;
- Business people from New York and Massachusetts moving to California in the 1980s to get away from the freezing winters.

Conduct a general class discussion using questions such as:

Did the physical geography of California make it easy for people to come here?
What problems did you (your character) have in getting to California?
How different is the geography of California from the place where you came from?
Would the geography of California change the way lived, worked, or played?
Were there any geographical similarities from their native country that were also found in California which made settling here even more attractive?

Focus Question: What natural resources are found in California?

As people came to California over the years they used many natural resources (e.g., minerals, forests, farmland, water) to feed and shelter themselves. What other resources did people rely on when they came to California? Using a brainstorming activity, have students list the resources needed to support the increasing population of the state. Once

the list has been recorded, define the terms "renewable" (resources that can be recovered and used again) and "non-renewable" (resources that can be used once). Have students identify the listed items as either renewable or non-renewable resources. (Point out too that people can be considered a "human" resource in that they provide needed services through the work they do.)
Ask students:

Did people in the early history of California rely more on renewable or non-renewable resources?
What is the greatest problem facing California today in supporting a large population? How would you recommend dealing with this problem?

Remind students that as they study about California during the year these questions will be discussed in greater detail.

Introduce the issue of water by examining local climatic conditions and comparing them to other parts of the state. Elevation and precipitation maps help to show where snow and rain occur. Students can infer where water originates and in what directions it flows. Brainstorm the importance of water resources having students respond either orally or in writing to the statement, "Water is California's liquid gold!"

Focus Question: How did the physical environment influence the location, settlement and growth of towns?

Use segments from the "California's Gold" (Video Series 200) to engage students in an examination of the physical geography of California and how areas have developed because of their location. A good, self-contained lesson is presented in the California's Gold Teacher's Guide, 200 Series (see "Resources for the Sample Topic"). Brainstorm why people enjoy California's coastal geography. What features of the coast do people especially like? What are some of the activities they can do for fun on the coast that they cannot do inland? Record student responses for later reference.

Read aloud *Bayberry Bluff* (see "Resources for the Sample Topic") that depicts the evolution of a coastal island community, spurred by the coastal geography so many people enjoy. Just as Bayberry Bluff grew because of its ocean view and climate, many California towns and cities grew because of the beautiful natural features in those places.

After the reading, briefly demonstrate how a timeline shows the development of the Bayberry Bluff community:

1890	1895	1900	1902	1910
Ferry boat rides	Camp-grounds	Elevated tents	Houses built	Town established

Ask students what other cities in California are located on the coast and are similar to Bayberry Bluff. Tell the class that they will see a short video on Santa Cruz ("California's Gold" video 205), which resembles Bayberry Bluff. As Santa Cruz grew, its citizens built a special place on the beach, attracting millions of people every year: The Santa Cruz Boardwalk.

To prepare for viewing the tape, students should have a mental image of where Santa Cruz is located. Show the boardwalk segment of the video. As students view it, they should listen for information that would explain why the boardwalk is considered a historic place. Ask students to relate how the Santa Cruz Boardwalk came to be. Have students compare Santa Cruz to the story of Bayberry Bluff.

Emphasize that having an understanding of place and location is important. Have students develop four or five questions about the location and origins of cities in California they would further like to investigate. Use these questions as a guide throughout the year when studying about different places in the state and the choices people made to live in these places. Post the questions as a reference.

For the complete lesson and recommended extended activities see "California's Gold Teacher's Guide ("200 Series"), pages 13-20.

C
Culminating the Topic

After students have a clear understanding of California's regions and the physical features of each region, divide the class into small groups to make physical relief maps of the state. Teachers can use the recipe and procedures for making salt and flour maps in AIMS Science book *Finding Your Bearings*, pages 128-130 (see Appendix I-3). Students can show their knowledge of California's physical geography by labeling the state's four main regions on their maps.

Conclude the lesson by writing a travelogue of a trip through California or by having students pretend to be a travel agent who must plan a trip for a client to visit different areas of the state while emphasizing the diverse geographical and climatic conditions.

On completion of the lesson refer back to the KWL chart listing what students learned and relating it to the "What We Want To Know" column. If topics under this column have not been developed use extended activities or research projects to address them.

Assessment

The assessment of this lesson is integrated with the instruction and occurs throughout the lesson rather than just at the end. The focus questions provide a framework for the evaluation of the unit. Assessment features described in this unit include:

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- Complete the KWL chart on what you know about California, what you want to know and finally what you learned about the state
- Label a blank California outline map noting key geographic features and cities
- Describe changes in scenery in "road map" activity using an outline state map
- Write a diary on the challenges encountered by early settlers during their travels
- Perform skit on challenges encountered by early settlers during their travels
- List resources (natural and human) needed to support the state's growing population
- Respond in writing (or orally) to the statement: "Water is California's liquid gold!"
- Develop 4-5 questions about the locations and origins of cities in California
- Make physical relief map of California indicating key cities, geographic features and regions
- Write a travelogue about a trip through California emphasizing the state's diverse geographic and climatic conditions
- Create "Found Poetry" using segments of literature
- Write a travel brochure to advertise various features of each of California's 4 regions
- Complete a Venn diagram comparing California with two other states or countries describing such attributes as size, population and resources
- Conduct a survey to determine why people live in California
- Develop questions about California's cities, regions, geographic features, natural resources or history for map quiz game cards
- Respond correctly to class discussion questions
- Work collaboratively to complete projects

Extended and Correlated Activities

- Read to the class a description of the state from *California: The Geography of Diversity* provided in Appendix I-2. From the reading, have students list the specific geographic features found in each region. To enhance students' understanding and provide poetic descriptions of California's regions, read aloud excerpts from *Mojave* and *Sierra* (see "Resources for the Sample Topic"). Students can create "Found Poems" using passages from the books. Record short segments from these sources and distribute for a "Found Poem" activity. Students mark six lines for the segment that most impresses them. Then eliminate two, leaving four. Then ask them to eliminate two more, leaving only two. Each student writes the two remaining lines on separate slips of 2" x 8" paper. In cooperative groups of 4 or 5, have students spread out their slips. All the slips must be used, even if there is repetition, as repetition in poetry can be very powerful. Once the group agrees upon the arrangement of lines, paste them onto a piece of 8"x 12" construction paper and illustrate the poem. One person from each group shares his or her "Found Poem," which then can be posted and used for a bulletin board display. Discuss what these "Found Poems" tell about the geography of California.

- Working in small groups students create a class mural using magazine pictures that represent the four regions of California. Alternately, have students (with permission from the principal) work on a class project drawing a large map of California in a designated area on the school grounds such as a patio. Using different colored chalk, draw in physical features of the state. Use the map as the focal point of a parent night activity in which students perform a tableau depicting one of the topics they have studied in the lesson.

- Working in groups, students create diorama scenes of each California region. The dioramas can include animals, plants and people of each region with descriptions written on the back of each scene.

- Students make travel brochures that advertise each region's features and attractions. California's natural and human resources should be emphasized in their descriptions of the state as a tourist attraction.

- Develop a "before and after" drawing of one of the regions of California showing what the natural environment was like and what that region looks like today. How did time change the region? What efforts have been made to preserve the natural environment?

- Conduct a survey of adults, relatives or friends to determine what they feel are the most important reasons why people want to live in California. Also ask what are the biggest drawbacks to living in California. Compare these responses with those gathered by other classmates. What suggestions would you have to make living in the state better?

- Using encyclopedias and almanacs in the school library, make a list of the natural resources and the chief industrial and farm products of California. Show on a map where the industries are located, crops are grown, and where you would find the state's most important natural resources.

- Make a Venn diagram comparing California with two other states from different regions of the country. Include the Venn diagram in student portfolios and at the end of the school year, have students construct another Venn diagram comparing California to two or three countries of the world. Explain how California compares in size, population, and resources to these countries. What do these Venn diagrams tell about the importance of California?

- Have students make up a California map quiz game. Students each contribute two questions written on cards with the correct answer written on back side. Collect cards, divide students into teams and choose one person to ask questions.

Resources for the Sample Topic

Bean, Walton E. California: *An Interpretive History*. New York: McGraw Hill, 1998. Written in a very readable style, the author examines the causes and meaning of major events in California's history. Recommended for teacher background reading, this text gives a comprehensive view of the political, economic, and social history of California from early Indian settlements through the 1970s.

"*California Gold*." VHS, PBS Los Angeles, 1991-1995. This video series explores topics in California history and every-day life in the state. "California Gold" consists of five video sets, each of which contains 12 programs. A teacher's guide for each set gives an overview of programs within the set and suggests various resources and interactive instructional strategies. In addition to "Santa Cruz" featured in the sample lesson, there are a number of programs which feature California's regions including: "Center of California (No. 608), "Natural Wonders" (No. 211), "Hard to Get To" (No. 411), "Amboy" (No. 401), "Islands" (No. 403), and "Life in Death Valley" (No. 606). This is an extremely valuable resource for teachers and may be ordered from the Department of Education by calling 1-800-995-4099.

Dewey, Jennifer Owings. *A Night and Day in the Desert*. Little, Brown and Company, 1991. The vividly accurate descriptions of animal and plant life bring the desert alive in this adventurous look at a unique environment.

Fradin, Dennis Brindell. *California: From Sea to Shining Sea*. Chicago: Children's Press, 1994. An excellent classroom resource guide to California. From ancient times up through the modern day, the Glossary, Timeline, and Gallery of Famous Californians puts California's history at your students' fingertips. Supplemented with many color photographs, this easy-to-read book is an valuable resource for the fourth grade classroom.

Knowlton, Jack. *Geography From A to Z: A Picture Glossary*. Illustrated by Harriet Barton. Harper Collins Publishers 1988. The sixty-three entries describe in clear, concise terms the earth's features and physical geography, from the highest mountain peak to the lowest desert. Each entry is beautifully illustrated in full-color graphics and follows an alphabetic format.

Lent, Blair *Bayberry Bluff*. Boston: Houghton Mifflin Co., 1987. In words and images, the author tells of the growth of the coastal island community of Bayberry Bluff, from a time when only a few people visited in the summer until more people come because of its attractive location. Before long, the popular vacation spot becomes a permanent home for many people.

Miller, Crane S. and Richard S. Hyslop. *California: The Geography of Diversity*. Palo Alto, CA: Mayfield Publishing Co., 1983. A topical study of California's

geography that emphasizes the significant physical and cultural landscape of the state. Recommended for teacher background reading.

Nickelsburg, Janet. *California From the Mountains to the Sea*. Coward McCann, Inc., 1964. A series of four short books on California's geography that examines special features which helped shape the state. *Mountains, Climate, Water and Land*, and *Natural Resources* each provide good geographic background information for teachers. Sections may be read to students to emphasize California's highly varied geographic setting.

Schad, Jerry. *California Deserts*. Falcon Press, 1988. Color photographs demonstrate the serenity as well as the harshness of desert life, while the text describes the history, geology, climate, and wildlife.

Shank, Bernard. *California Wildlife*. Falcon Press, 1989. Spectacular color photographs illustrate the magnificence of California wildlife as it interacts with the environment in several physical settings.

Stein, R. Conrad. *California*. Chicago: Children's Press, 1995. A beautifully illustrated book on California in the publisher's "America the Beautiful" series. Of particular note are Chapters 2 and 9, "Land Forms" and "Highlights of the Golden State, " that explore California's geography. This is a good read aloud book.

Thomas, Pamela. California: *The Land, The People, The Cities*. New York: Mallard Press, 1991. A showcase of lavish color photographs on the physical beauty of California. Each of the three divisions of this photographic essay concentrates on a theme: the diversity of the land; the mix of people who live, work, and play in the state; and the urban centers with their unique charm, and distinctive features.

Resources for Other Topics

Jernigan, Gisela. *Agave Blooms Just Once*. Harbinger, 1989. Lyrical writing and lovely drawings give the reader a real sense of who are the desert dwellers as they traverse alphabetically through the pages. This book can also be used with primary grades.

Morrison, Faye, and Kathryn Cusick. *Golden Poppies: California History and Contempory Life in Books and Other Media for Young Readers--An Annotated Bibliography*. Library Professional Publication, 1987. This extensive bibliography is a good resource for fourth grade teachers and will serve as a helpful quick reference.

Pack, Janet. *California*. Franklin Watts, 1987. This is an easy-to-read story of California that begins with early exploration, describes California's residents, and concludes with a discussion of California's modern challenges and hoped-for solutions.

Rolle, Andrew F. *California: A History* (Fifth edition). Harlan Davidson, 1998. Considered the standard history of California, this book begins with California's early inhabitants and covers Spanish rule, Mexican control, American exploration and settlement, the gold rush, immigration, and statehood. More than one quarter of the text is devoted to the twentieth century, including current issues. A very useful teacher resource.

Vieira, Linda. *The Ever-Living Tree: The Life and Times of a Coast Redwood.* Walker, 1994. A timeline of world history following the growth of a redwood tree through 2000 years of its life. A superb example of non-fiction in a picture book format. Magnificent illustrations.

Visual and Performing Arts Resources

Arnold, Caroline. *On the Brink of Extinction: The California Condor.* Gulliver, 1993. A splendid photo-essay of one species of California wildlife shown historically as well as contemporaneously. The concepts of "now" versus "long ago" as well as cause and effect become crystal clear. The reader is left sharing the hope that the condor propagation efforts at the Los Angeles and San Diego zoos are effective. A promising work for integrating California history and science.

Beautiful California: A Sunset Pictorial. Edited by Elizabeth Hogan. Sunset, 1992. A pictorial guide of California from the North Coast through the Sierras and deserts to the Mexican border. Includes hundreds of beautiful color photographs that show the geographic diversity of the state.

Dunphy, Madeleine. *Here Is the Southwestern Desert.* Illustrated by Anne Coe. Hyperion, 1995. A cumulative poem that shows the connections between plants and animals of the Sonoran Desert. The repetition of verse and the accompanying paintings will assist limited English students in understanding the elements that form the chain of life in desert regions.

Siebert, Diane, *Mojave.* Crowell, 1988. The beautiful illustrations and poetic text of this book portray the essence of the Mojave Desert. A companion work, *Sierra.* (Harper Collins, 1991), provides an spectacular view of the Sierras. Highly recommended for this topic.

Appendix I-1

What We Know, What We Want to Know, What We Learned

Using the chart below, list the topic you are currently studying.
In the first column list all the things that you <u>already know</u> about the topic.
In the second column, list <u>what you want to know</u>.
After you finish studying about one of the items you have listed, use the third column to enter <u>what you learned</u>.

K What We Know	W What We Want to Know	L What We Learned

Appendix I-2

California: The Geography of Diversity
by Crane S. Miller and Richard S. Hyslop

Few places on earth can lay legitimate claim to the degree of geographical diversity that is California's. Where else in a single area of less than 160,000 square miles are found glaciated mountains, verdant river valleys, countless seascapes, snow-less winters, redwoods, rain forests dry deserts deep lakes, plenty of petroleum and bountiful agriculture.

The coastal region offers a range in climate that is cool and damp in the north and warm and arid in the south. Many people are attracted to the coast because of the variety of activities to be found. In the north there is the beauty of the city by the bay, San Francisco, Big Sur, and Redwood National Park. In the south the year round warm weather is perfect for surfing, sailing and biking. Tourists enjoy visiting the many beaches and the entertainment industries can always count on beautiful weather for filming.

The Central Valley is home to some of the most productive farmland in the world. The Sacramento and San Joaquin rivers provide the water necessary for the growth of t abundance of California crops. These crops are shipped all over California and the world. A child on the East Coast might drink juice from Central Valley oranges and a Japanese family can enjoy avocados grown nearly halfway around the world.

The desert region is not an easy place to live, but hundreds of types of plants and animals have found ways to survive in its harsh conditions. The climate is very extreme ranging from blistering heat in the summer t freezing cold in the winter. People have found ways to live in the desert, too. Groups of indigenous peoples have lived in the Mojave desert for thousands of years.

The mountain region is made up of several mountain ranges. In fact, over half of the land in the state is covered with mountains. The Sierra Nevada is just one of the many mountain ranges in California. John Muir, a famous man who wrote about nature described the Yosemite Valley of the Sierra Nevada as follows: "As long as I live, I'll hear waterfalls and birds and winds sing. I'll interpret the rocks, learn the language of flood, storm, and the avalanche. I'll acquaint myself with the glaciers and wild gardens, and get as near the heart of the world as I can."

Appendix I-3

Finding Your Bearings
Relief Maps

Beginning the Project

Students construct a flour and salt map of California. There are three stages to making relief maps: forming, painting, and labeling. The exercise will take several class periods. You will need to arrange for a drying area for the maps. You should allow about one week for the maps to thoroughly dry.

You will need approximately 10 pounds of salt and flour for a class of 30. Send parents/guardians a note (see sample below) informing them of the project and listing the materials each student will need to bring. Have additional flour and salt available in the event that some students do not bring supplies from home. Have a supply of wooden spoons or tongue depressors available for mixing. Working with students, determine an elevation color key to use when painting the relief maps.

Arrange in advance for parent volunteers or instructional aides to assist as students make their relief maps. It would be helpful to use the cafeteria or some other room where students may work on tables. Cover tables with butcher paper to facilitate clean-up. Review student behavior expectations and have activities available for groups that may finish early. Remember, the key to success is being well organized and having all materials set out in advance of the activity.

MATERIALS

For the class:
- Sample relief maps
- Physical map of California

For each student:
- 1 cup (250 ml) flour
- ½ cup (125 ml)salt
- ½ cup (125 ml) water
- Cardboard (8 ½ X 11" or larger)
- Outline map of California fitted to the cardboard
- Mixing container
- Wooden spoon or tongue depressor (optional)
- Toothpicks
- Gummed labels r strips of masking tape

For each table:
- Recipe (in a ziploc bag or transparent envelope)

Appendix I-4

Sample Note to Parents or Guardians

Dear Parent or Guardian,

We have been studying the geography of California and our final class activity will be the making of a relief map of the state. Please have your child measure one cup of flour and ½ cup of salt in two separate plastic bags. Make sure each plastic bag is sealed and brought to school on _____ . Thank you for your support.

The completed maps will be on display in room_____ on _____ .
I hope you can come to school to see your child's work.

Sincerely,

_____

(Adapted from Finding Your Bearings, AIMS Science book, pages 128-130.)

Glue and tape
Measuring cups and spoons
Butcher paper

Steps for Making a Relief Map

Glue maps onto their cardboard bases.
Using the following recipe, mix the flour and salt with wooden spoons or tongue depressors.
Add water to the mixture to form a dough.
Put the dough on the map and form major physical features.
Place toothpicks in the locations that are to be labeled.
Clean up the area.
Place the maps in a drying area.
After the map had thoroughly dried, paint using the elevation color key which was previously determined.
When the paint has dried, label the physical features, major cities, and state landmarks.
Write on the gummed label or strip of masking tape and fold it in half around the toothpick.

Relief Map Dough Recipe

1 cup (250 ml) flour
½ (125 ml) salt
½ (125 ml) water, approximately

Steps for Making Dough for Relief Map

1. Glue your map to the cardboard.

2. Mix the flour and salt in a bowl. Add the water a little at a time until the mixture resembles play dough. You may not need to use all the water. DO NOT MAKE THE MIXTURE RUNNY!

3. Place the dough on your map and form. Use maps in the room to guide you in molding the major physical features.

4. Press toothpicks into each area you are going to label.

5. Carefully put your map in the drying area.

6. Clean up your work area.

Appendix I-4

Sample Note to Parents or Guardians

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The completed maps will be on display in room_____ on _____ .
I hope you can come to school to see your child's work.

Sincerely,

_____

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